west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-3163A
Plant ID No.:	017-00079
Applicant:	Crestwood Marcellus Midstream LLC (Crestwood)
Facility Name:	Banner Compressor Station
Location:	New Milton, Doddridge County
NAICS Code:	221210 (Natural Gas Distribution)
Application Type:	Modification
Received Date:	May 28, 2014
Engineer Assigned:	Jerry Williams, P.E.
Fee Amount:	$1,000.00
Date Received:	May 28, 2014
Complete Date:	June 23, 2014
Due Date:	September 21, 2014
Applicant Ad Date	June 3, 2014
Newspaper:	*The Herald Record*
UTM's:	Easting: 529.559 km Northing: 4,339.809 km Zone: 17
Description:	Modification of a natural gas compressor station for as-built changes. This permitting action will result in this facility being a synthetic minor for greenhouse gas (CO_2e) emissions.

DESCRIPTION OF PROCESS

Gas from surrounding pipelines will enter the facility through two (2) receivers and associated slug catchers. From there, the gas will be metered and routed through a scrubber and filter separator. Any produced liquids from the scrubber or separator are sent to the 400 barrel (bbl) settling tank (T-1). Gas from the filter separator is sent to one (1) of eleven (11) 1,680 HP Waukesha compressor engines (CE-1 – CE-11). The eleven (11) compressor engines are controlled with non-selective catalytic reduction (NSCR) catalysts and air-fuel ratio controllers. The compressed gas is then routed to another filter separator, with produced fluids going to the settling tank and gas going to the two (2) TEG dehydrators.

The two (2) TEG dehydrators each contain a flash gas tank and 1.5 MMBtu/hr reboiler. The dehydrators have a design rate of 60 million standard cubic feet per day (mmscfd) each. Within the dehydrator units, vent gas from the flash tank is routed to the reboilers (RBV-1, RBV-2) to be used as fuel, with an assumed 95% efficiency for combusting the gas. Emissions from the reboilers are routed to the atmosphere. The dehydrator still vents (RSV-1, RSV-2) are controlled by condensers and combustion recycle (CC1, CC2) to their respective reboilers (RBV-1, RBV-2). The dry gas from the dehydration process is either routed to a fuel gas scrubber, metered, and routed to the compressors as fuel gas or metered and sent to plant discharge.

The produced fluids that enter the storage tanks will take place under one of the scenarios listed below:

a. Operating Scenario 1. All liquids are initially routed to T-1, which is used as a settling tank to separate condensate from produced water. From T-1, produced water is routed to T-2 and T-3, and condensate is routed to T-4 and T-5. In Operating Scenario 1, the throughputs shall not exceed the following:

Storage Tank ID	**Product Stored**	**Maximum Annual Throughput (gal/yr)**
T-1	Settling Tank (Condensate/ Produced Water)	6,132,000
T-2, T-3	Produced Water	5,518,800 (Both tanks)
T-4, T-5	Condensate	613,200 (Both tanks)

b. Operating Scenario 2. A mixture of produced water and condensate is routed to and stored in any of the five tanks (T-1 – T-5), without separation. In Operating Scenario 2, the throughputs shall not exceed the following:

Storage Tank ID	**Product Stored**	**Maximum Annual Throughput (gal/yr)**
T-1, T-2, T-3, T-4, T-5	Produced Water	5,518,800 (all tanks combined)
	Condensate	613,200 (all tanks combined)

All five (5) tanks are connected to a vapor recovery unit (VRU) where tank vapors are collected and recycled back into the gas system right before the initial filter scrubber. The produced fluids are trucked out via tanker trucks as needed (LR-1) with a projected capacity of 146,000 bbl/yr.

One 600 kW natural gas fired microturbine will be utilized as power for the facility. An associated 0.0576 MMBTU/hr fuel gas heater will be used with the microturbine.

There will also be small storage tanks located at the facility for storage of waste oil, glycol makeup, compressor lube oil, coolant, and engine lube oil. Any emissions from the miscellaneous tanks are, based on the vapor pressures of the materials stored, considered insignificant. Fugitive emissions from component leaks and emissions from venting or blowdown events will also occur.

The purpose of this permit application is for the following:

- Change the name of the microturbine generator bank (GEN-1). The microturbine generator is a Capstone model C800 NG, which consists of four (4) NG microturbines that will be programmed such that no more than three (3) operate simultaneously.
- Add a new 98 % annual fuel usage cap on the eleven (11) compressor engines in order to maintain the site as a minor source of carbon dioxide equivalents (CO_2e).
- Revise the compressor engines horsepower (HP) rating from 1,627 HP to 1,680 HP on the ten (10) compressor engines (CE-1 – CE-11) to reflect revised information from the engine vendor.
- Provide a revised NSCR catalyst specification sheet of the engine catalysts.
- Add a safety factor of 20% to the regenerator emissions for the glycol dehydration units (RSV-1, RSV-2) to account for gas composition variability.
- Revise glycol flash tank to be controlled by routing vapors to dehydrator reboiler for 95% control efficiency.
- Revise the vapor recovery unit (VRU) capture efficiency to 95%.
- Revise storage tank (T-1 – T-5) and loading rack (LR-1) throughputs to better reflect actual site throughputs.
- Add a new microturbine fuel gas heater (HTR-1).
- Minor revisions to storage tank capacities to reflect changes to the previously permitted storage tanks.

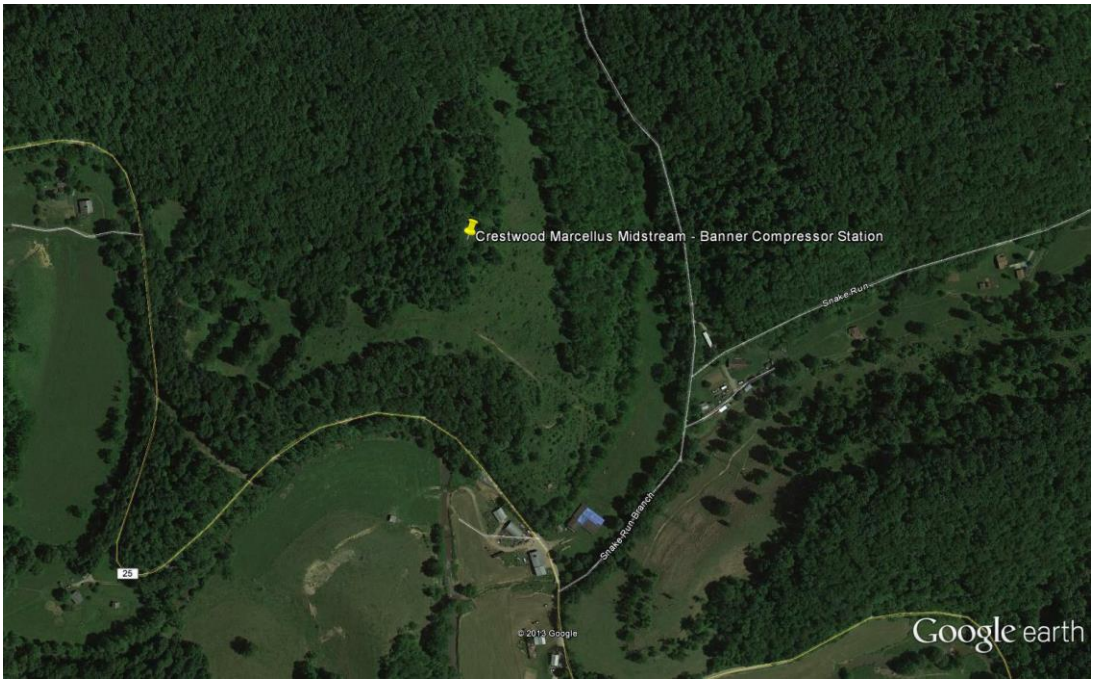
SITE INSPECTION

A site inspection was conducted on June 3, 2014 by Doug Hammell of the DAQ Enforcement Section. The facility was under construction as permitted under R13-3163.

Latitude: 39.24865
Longitude: -80.59414

Directions as given in the permit application are as follows:

From the intersection of US Route 50 and State Route 18 in Doddridge County, travel south on State Route 18 for 6.8 miles. Turn left on County Route 25/Meathouse Fork Road and proceed for 4.6 miles to the Banner Compressor Station site on the left.



ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this modification application consist of the combustion emissions from eleven (11) natural gas fired compressor engines (CE-1 – CE-11), one (1) microturbinegenerator (GEN-1), two (2) TEG dehydrator still vents (RSV-1, RSV-2), two (2) TEG dehydrator reboilers (RBV-1, RBV-2), five (5) 400 bbl tanks (condensate, produced water, settling) (T-1 – T-5), five (5) miscellaneous storage tanks (waste oil, glycol makeup, compressor lube oil, coolant, engine lube oil), one (1) product loadout rack (LR-1), two (2) vapor recovery units (VRU-1, VRU-2) and fugitive emissions. Fugitive emissions for the facility are based on calculation methodologies presented in EPA Protocol for Equipment Leak Emission Estimates. The following table indicates which methodology was used in the emissions determination:

Emission Point ID#	**Process Equipment**	**Calculation Methodology**
CE-1 – CE-11	1,680 hp Waukesha 7044 GSI Reciprocating Internal Combustion Engine (RICE) w/ NSCR	Manufacturer's Data, EPA AP-42 Emission Factors
GEN1	600 kW Capstone C800 NG Microturbine Generator	Manufacturer's Data, EPA AP-42 Emission Factors
RSV-1 RSV-2	60 mmscfd TEG Dehydrator Still Vent w/ Condenser/Recycle	GRI-GlyCalc 4.0
RBV-1 RBV-2	1.5 MMBtu/hr TEG Dehydrator Reboiler	EPA AP-42 Emission Factors
T-1	600 bbl (25,200 gal) Produced Water/Condensate Settling Tank	EPA Tanks 4.09d and Gas Oil Ratio Method (Flashing)
T-2	400 bbl (16,800 gal) Produced Water Storage Tank	EPA Tanks 4.09d
T-3	400 bbl (16,800 gal) Produced Water Storage Tank	EPA Tanks 4.09d
T-4	400 bbl (16,800 gal) Condensate Storage Tank	EPA Tanks 4.09d
T-5	400 bbl (16,800 gal) Condensate Storage Tank	EPA Tanks 4.09d
T-6	2,000 gal Waste Oil Storage Tank	Negligible
T-7	1,000 gal Bulk Glycol Makeup Storage Tank	Negligible
T-8	2,000 gal Compressor Lube Oil Storage Tank	Negligible
T-9	1,000 gal Coolant Storage Tank	Negligible
T-10	2,000 gal Engine Lube Oil Storage Tank	Negligible
LR-1	14,600 bbl/yr Condensate 131,400 bbl/yr Produced Water Loadout Rack	EPA AP-42 Emission Factors, TCEQ Guidance. Submerged Loading
VRU-1	Vapor Recovery Unit #1	Electric Driven
VRU-2	Vapor Recovery Unit #2	Electric Driven

The following table indicates the control device efficiencies that are required for this facility:

Emission Unit	Pollutant	Control Device	Control Efficiency
1,680 hp Waukesha 7044 GSI RICE w/ NSCR (CE-1 – CE-10)	Nitrogen Oxides	NSCR	96.3 %
	Carbon Monoxide		96.1 %
	Volatile Organic Compounds		23.1 %
	Formaldehyde		20 %
	Methane		80 %
60 mmscfd TEG Dehydrator Still Vents (RSV-1, RSV-2)	Volatile Organic Compounds	Condenser and Combustion Recycle	98 %
	Hazardous Air Pollutants		98 %

On January 1, 2014 (effective date of rule) there were revisions to the Greenhouse Gas (GHG) Rule that will affect the Global Warming Potential (GWP) values of several pollutants. The GWP for methane increased from 21 to 25 and nitrous oxide decreased from 310 to 298. Crestwood utilized these revised factors in this permit application in the calculation of their GHG potential.

The total facility emissions after this proposed modification are shown in the following table:

Pollutant	Maximum Pre-Modification Annual Facility Wide Emissions (tons/year)	Maximum Post-Modification Annual Facility Wide Emissions (tons/year)	Net Facility Wide Emissions Changes (tons/year)
Nitrogen Oxides	28.26	90.26	62.00
Carbon Monoxide	55.76	91.33	35.57
Volatile Organic Compounds	72.32	94.11	21.79
Particulate Matter-10/2.5	12.81	12.93	0.12
Sulfur Dioxide	0.42	0.43	0.01
Formaldehyde	2.10	7.00	4.90
Total HAPs	12.59	18.86	6.27
Carbon Dioxide Equivalent	99,552	100,964	1,412

Maximum detailed controlled point source emissions were calculated by Crestwood and checked for accuracy by the writer and are summarized in the table on the next page. According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories, therefore, CO_2e emissions for Title V and PSD applicability purposes for the facility will be 99,379 tons per year.

Crestwood Marcellus Midstream LLC – Banner Compressor Station (R13-3163A)

Emission	Source	NO_x		CO		VOC		PM-10/2.5		SO_2		Formaldehyde		Total HAPs		CO_2e
Unit ID#		lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	ton/year
CE-1	Compressor Engine #1	1.86	8.00	1.85	7.94	1.11	4.77	0.27	1.16	<0.01	0.04	0.15	0.64	0.31	1.35	8482
CE-2	Compressor Engine #2	1.86	8.00	1.85	7.94	1.11	4.77	0.27	1.16	<0.01	0.04	0.15	0.64	0.31	1.35	8482
CE-3	Compressor Engine #3	1.86	8.00	1.85	7.94	1.11	4.77	0.27	1.16	<0.01	0.04	0.15	0.64	0.31	1.35	8482
CE-4	Compressor Engine #4	1.86	8.00	1.85	7.94	1.11	4.77	0.27	1.16	<0.01	0.04	0.15	0.64	0.31	1.35	8482
CE-5	Compressor Engine #5	1.86	8.00	1.85	7.94	1.11	4.77	0.27	1.16	<0.01	0.04	0.15	0.64	0.31	1.35	8482
CE-6	Compressor Engine #6	1.86	8.00	1.85	7.94	1.11	4.77	0.27	1.16	<0.01	0.04	0.15	0.64	0.31	1.35	8482
CE-7	Compressor Engine #7	1.86	8.00	1.85	7.94	1.11	4.77	0.27	1.16	<0.01	0.04	0.15	0.64	0.31	1.35	8482
CE-8	Compressor Engine #8	1.86	8.00	1.85	7.94	1.11	4.77	0.27	1.16	<0.01	0.04	0.15	0.64	0.31	1.35	8482
CE-9	Compressor Engine #9	1.86	8.00	1.85	7.94	1.11	4.77	0.27	1.16	<0.01	0.04	0.15	0.64	0.31	1.35	8482
CE-10	Compressor Engine #10	1.86	8.00	1.85	7.94	1.11	4.77	0.27	1.16	<0.01	0.04	0.15	0.64	0.31	1.35	8482
CE-11	Compressor Engine #11	1.86	8.00	1.85	7.94	1.11	4.77	0.27	1.16	<0.01	0.04	0.15	0.64	0.31	1.35	8482
GEN1	Microturbine Generator	0.25	1.05	0.66	2.89	0.06	0.26	0.02	0.06	<0.01	0.03	<0.01	0.01	<0.01	0.01	3505
HTR-1	Fuel Gas Heater	<0.01	<0.01	0.03	0.12	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	20
RSV-1	Dehydrator Still Vent	0.00	0.00	0.00	0.00	2.59	11.33	0.00	0.00	0.00	0.00	0.00	0.00	0.34	1.47	514
RBV-1	Dehydrator Reboiler	0.14	0.61	0.12	0.51	0.01	0.03	0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	734
RSV-2	Dehydrator Still Vent	0.00	0.00	0.00	0.00	2.59	11.33	0.00	0.00	0.00	0.00	0.00	0.00	0.34	1.47	514
RBV-2	Dehydrator Reboiler	0.14	0.61	0.12	0.51	0.01	0.03	0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	734
T-1	Settling Tank	0.00	0.00	0.00	0.00	16.12	3.04	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	0.05	55
T-2	Condensate Tank	0.00	0.00	0.00	0.00	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	0.01	0
T-3	Condensate Tank	0.00	0.00	0.00	0.00	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	0.01	0
T-4	Produced Water Tank	0.00	0.00	0.00	0.00	<0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	0.01	0
T-5	Produced Water Tank	0.00	0.00	0.00	0.00	<0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	0.01	0
Total Point Source		**20.99**	**90.26**	**21.28**	**91.33**	**33.63**	**78.71**	**3.01**	**12.93**	**0.10**	**0.43**	**1.65**	**7.00**	**4.09**	**17.87**	**99379**
Fugitive	Engine Rod Packing	0.00	0.00	0.00	0.00	<0.01	0.22	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	<0.01	48
LR-1	Loadout Rack	0.00	0.00	0.00	0.00	37.80	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.02	44
Fugitive	Component Leak	0.00	0.00	0.00	0.00	NA	8.72	0.00	0.00	0.00	0.00	0.00	0.00	NA	0.87	600
Fugitive	Venting Episodes	0.00	0.00	0.00	0.00	NA	4.79	0.00	0.00	0.00	0.00	0.00	0.00	NA	0.10	893
Total Fugitive		**0.00**	**0.00**	**0.00**	**0.00**	**37.80**	**15.40**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.36**	**0.99**	**1585**
Total Sitewide		**20.99**	**90.26**	**21.28**	**91.33**	**71.43**	**94.11**	**3.01**	**12.93**	**0.10**	**0.43**	**1.65**	**7.00**	**4.45**	**18.86**	**100964**

REGULATORY APPLICABILITY

The following rules apply to this modification:

45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units. 45CSR2 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the proposed fuel gas heater (HTR-1) is below 10 MMBTU/hr. Therefore, this unit is exempt from the aforementioned sections of 45CSR2.

Crestwood would also be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average.

45CSR10 (To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides)

The purpose of 45CSR10 is to establish emission limitations for sulfur dioxide which are discharged from fuel burning units. 45CSR10 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 3 (weight emission standard), 6 (registration), 7 (permits), and 8 (testing, monitoring, recordkeeping, reporting). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the proposed fuel gas heater (HTR-1) is below 10 MMBTU/hr. Therefore, this unit is exempt from the aforementioned sections of 45CSR10.

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

45CSR13 applies to this source due to the fact that Crestwood will exceed the modification threshold of 6 lb/hr and 10 ton/year of emissions for nitrogen oxides and carbon monoxide.

Because a limitation was placed on CE-1 – CE-11 to remain below major source thresholds for CO_2e, Crestwood is subject to Notice Level C (45CSR13 Section 8.5) and will be required to publish a commercial display ad (45CSR13 Section 8.4.a) and post a visible sign at their facility (45CSR13 Section 8.5.a).

Crestwood paid the appropriate application fee and published the required legal advertisement for a construction permit application.

45CSR22 (Air Quality Management Fee Program)

Crestwood is not subject to 45CSR30. The Banner Compressor Station is subject to 40CFR60 Subparts JJJJ and OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

Crestwood is required to pay the appropriate annual fees and keep their Certificate to Operate current.

40CFR60 Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE))

40CFR60 Subpart JJJJ establishes emission standards for applicable SI ICE.

The 1,680 hp Waukesha 7044 GSI RICE (CE-1 – CE-11) were manufactured after the July 1, 2010 date for engines with a maximum rated power capacity greater than or equal to 500 hp.

The proposed 1,680 hp Waukesha 7044 GSI RICE (CE-1 – CE-11) will be subject to the following emission limits: NOx – 1.0 g/hp-hr (3.71 lb/hr); CO – 2.0 g/hp-hr (7.42 lb/hr); and VOC – 0.7 g/hp-hr (2.59 lb/hr). Based on the manufacturer's specifications for these engines and catalysts, the emission standards will be met.

The proposed 1,680 hp Waukesha 7044 GSI RICE (CE-1 – CE-11) are not certified by the manufacturer to meet the emission standards listed in 40CFR60 Subpart JJJJ. Therefore, Crestwood will be required to conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or three (3) years, whichever comes first, to demonstrate compliance.

40CFR63 Subpart HH (National Emission Standards for Hazardous Air Pollutants for Oil and Natural Gas Production Facilities)

Subpart HH establishes national emission limitations and operating limitations for HAPs emitted from oil and natural gas production facilities located at major and area sources of HAP emissions. The glycol dehydration unit at the Banner Compressor Station is subject to the area source requirements for glycol dehydration units. However, because the facility is an area source of HAP emissions and the actual average benzene emissions from the glycol dehydration unit is below 0.90 megagram per year (1.0 tons/year) it is exempt from all requirements of Subpart HH except to maintain records of actual average flowrate of natural gas to demonstrate a continuous exemption status.

40CFR63 Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines)

Subpart ZZZZ establishes national emission limitations and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations. The engines (CE-1 – CE-11) at the Banner Compressor Station are subject to the area source requirements for non-emergency spark ignition engines.

The applicability requirements for new stationary RICEs located at an area source of HAPs, is the requirement to meet the standards of 40CFR60 Subpart JJJJ. These requirements were outlined above. The proposed engine meets these standards.

Because these engines will not be certified by the manufacturer, Crestwood will be required to perform an initial performance test within 180 days from startup, and subsequent testing every 8,760 hours or 3 years, whichever comes first.

The following rules do not apply to the facility:

45CSR30 (Requirements for Operating Permits)

Crestwood is not subject to 45CSR30. The Banner Compressor Station is subject to 40CFR60 Subparts JJJJ and OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

40CFR60 Subpart Kb (Standards of Performance for VOC Liquid Storage Vessels)

40CFR60 Subpart Kb does not apply to storage vessels with a capacity less than 75 cubic meters. One of the tanks (T-1) that Crestwood has proposed to install is larger than 75 cubic meters. However, the settling storage tank (T-1) is exempt from this rule due to the exemption listed in 40CFR60.110b(d)(4). This provision is an exemption for storage vessels with a design capacity less than or equal to 1,589.874 cubic meters (420,000 gallons) used for petroleum or condensate stored, processed, or treated prior to custody transfer. Therefore, the 25,200 gallon storage tank storing condensate/produced water would not be subject to this rule.

40CFR60 Subpart KKK (Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants)

40CFR60 Subpart KKK applies to onshore natural gas processing plants that commenced construction after January 20, 1984, and on or Before August 23, 2011. The Banner Compressor Station is not a natural gas processing facility, therefore, Crestwood is not subject to this rule.

45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants)

45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment)

The Banner Compressor Station is located in Doddridge County, which is an unclassified county for all criteria pollutants, therefore 45CSR19 is not applicable to the Banner Compressor Station.

As shown in the following table, Crestwood is not a major source subject to 45CSR14 or 45CSR19 review. According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories, therefore, CO_2e emissions for Title V and PSD applicability purposes for the facility will be 99,379 tons per year.

Pollutant	**PSD (45CSR14) Threshold (tpy)**	**NANSR (45CSR19) Threshold (tpy)**	**BannerPTE (tpy)**	**45CSR14 or 45CSR19 Review Required?**
Carbon Monoxide	250	NA	91.33	No
Nitrogen Oxides	250	NA	90.26	No
Sulfur Dioxide	250	NA	0.43	No
Particulate Matter 2.5	250	NA	12.93	No
Ozone (VOC)	250	NA	78.71	No
Greenhouse Gas (CO_2e)	100,000	NA	99,379	No

This permitting action will keep this facility as a synthetic minor for greenhouse gas (CO_2e) emissions. A limitation was placed on fuel usage for engines (CE-1E – CE-11E) to make this source a synthetic minor source of greenhouse gas (CO_2e) emissions to remain below major source thresholds for CO_2e.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. Crestwood included the following HAPs as emitted in substantive amounts in their emissions estimate: Benzene, Ethylbenzene, Formaldehyde, Toluene, and Xylene. The following table lists each HAP's carcinogenic risk (as based on analysis provided in the Integrated Risk Information System (IRIS)):

HAPs	Type	Known/Suspected Carcinogen	Classification
Formaldehyde	VOC	Yes	Category B1 - Probable Human Carcinogen
Benzene	VOC	Yes	Category A - Known Human Carcinogen
Ethylbenzene	VOC	No	Inadequate Data
Toluene	VOC	No	Inadequate Data
Xylenes	VOC	No	Inadequate Data

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health effects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease) and lifestyle. As stated previously, *there are no federal or state ambient air quality standards for these specific chemicals*. For a complete discussion of the known health effects of each compound refer to the IRIS database located at *www.epa.gov/iris*.

AIR QUALITY IMPACT ANALYSIS

Modeling was not required of this source due to the fact that the facility is not subject to 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants) or 45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment) as shown in the table listed in the Regulatory Discussion section under 45CSR14/45CSR19.

SOURCE AGGREGATION

"Building, structure, facility, or installation" is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

The Banner Compressor Station is located in Doddridge County and will be operated by Crestwood.

- The Banner Compressor Station will operate under SIC code 4932 (Natural Gas Distribution). There are other compressor stations operated by Crestwood that share the same two-digit major SIC code of 49 for natural gas transmission. Therefore, the Banner Compressor Station does share the same SIC code as other Crestwood compressor stations.

- "Contiguous or Adjacent" determinations are made on a case by case basis. These determinations are proximity based, and it is important to focus on this and whether or not it meets the common sense notion of a plant. The terms "contiguous" or "adjacent" are not defined by USEPA. Contiguous has a dictionary definition of being in actual contact; touching along a boundary or at a point. Adjacent has a dictionary definition of not distant; nearby; having a common endpoint or border.

  There are no Crestwood properties in question that are considered to be on contiguous or adjacent property with the Banner Compressor Station. The closest Crestwood facility is more than one (1) mile from this site. The land between these sites is not owned or managed by Crestwood. Operations separated by these distances do not meet the common sense notion of a plant. Therefore, the properties in question are not considered to be on contiguous or adjacent property.

- Common control. The natural gas well sites that supply the incoming natural gas streams to the Banner Compressor Station are not under common control, and are owned and operated by Crestwood Resources.

Because the facilities are not considered to be on contiguous or adjacent properties, the emissions from the Banner Compressor Station should not be aggregated with other facilities in determining major source or PSD status.

MONITORING OF OPERATIONS

Crestwood will be required to perform the following monitoring:

- Monitor and record quantity of natural gas consumed for all engines and combustion sources.
- Monitor all applicable requirements of 40CFR60 Subparts JJJJ and OOOO.

Crestwood will be required to perform the following recordkeeping:

- Maintain records of the amount of natural gas consumed and hours of operation for all engines and combustion sources.
- Maintain records of testing conducted in accordance with the permit. Said records shall be maintained on-site or in a readily accessible off-site location
- Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
- Maintain records of the visible emission opacity tests conducted per the permit.
- Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility. These records shall include the natural gas compressor engines and ancillary equipment.
- Maintain records of all applicable requirements of 40CFR60 Subparts JJJJ and OOOO.
- The records shall be maintained on site or in a readily available off-site location maintained by Crestwood for a period of five (5) years.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that Crestwood meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Banner Compressor Station should be granted a 45CSR13 modification permit for their facility.

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Jerry Williams, P.E.
Engineer

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Date